2009

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Eahab Elsaid
University of Windsor

Wallace N. Davidson III

ELSEVIER

The Quarterly Review of Economics and Finance
xxx (2008) xxx–xxx

The QUARTERLY REVIEW of ECONOMICS and FINANCE

www.elsevier.com/locate/qref

What happens to CEO compensation following turnover and succession?

Eahab Elsaid [a,1], Wallace N. Davidson III [b,*]

[a] *Accounting & Finance Department, University of Windsor, Windsor, Ont. N9B 3P4, Canada*
[b] *Finance Department, Southern Illinois University, Carbondale, IL 62901, United States*

Received 6 April 2007; received in revised form 7 January 2008; accepted 28 April 2008

Abstract

When boards hire CEOs, the board and successor CEO have an opportunity to redesign the predecessor's compensation contract. The CEO's relative bargaining power will influence the outcome of compensation negotiations. Analyzing 508 successions, we find that total compensation of successor CEOs increases by 69% over their predecessor, but the structure of successor compensation is heavily influenced by the predecessors' contracts. When the board's bargaining power is large, successors have a greater proportion of pay-at-risk and smaller proportion of salary. When the CEO's bargaining power is large, there is a smaller proportion of pay-at-risk and relatively greater proportion of salary.

JEL classification: G3; M52

Keywords: CEO turnover; CEO succession; Compensation; Corporate governance

1. Introduction

The principal/agent relationship between shareholders and management has garnered considerable attention among researchers, shareholder groups, and the financial press. When managers do not pursue shareholder wealth maximizing strategies, agency costs occur. One internal solution to the agency problem is the development of a compensation plan that aligns the interests of managers with those of shareholders. While the board can change the compensation structure

* Corresponding author. Tel.: +1 618 453 1429.
E-mail addresses: elsaid@uwindsor.ca (E. Elsaid), davidson@cba.siu.edu (W.N. Davidson III).
[1] Tel.: +1 519 253 3000x4258.

1062-9769/$ – see front matter
doi:10.1016/j.qref.2008.04.001

of an existing CEO, a powerful CEO may successfully resist change (Bebchuk & Fried, 2004). However, when a board hires a successor CEO, the board has the opportunity to refocus the package without alienating an incumbent CEO.

The compensation literature is extensive. A large part of this literature focuses on the sensitivity of compensation to firm performance (e.g. Crawford, Ezzell, & Miles, 1995; Jensen & Murphy, 1990; Murphy, 1985, among many others) and how various firm characteristics impact compensation (e.g. Gaver & Gaver, 1993; Newman & Mozes, 1999; Smith & Watts, 1992).

There is another extensive body of literature that spans both the finance and management literature and has focused on CEO succession. Here, research has examined both the antecedents and consequences of CEO succession (e.g. Davidson, Nemec, & Worrell, 2002; Parrino, 1997; Shen & Cannella, 2003; Weisbach, 1988, among others).

In this paper, we examine successor CEO compensation packages and compare them to those of their predecessors.[2] At the time of succession, the board of directors has an opportunity to realign the CEO's incentives and perhaps to increase the relation between pay and performance. The board can correct mistakes made with the predecessor's contract and attempt to obtain optimal contracting. On the other hand, successor CEOs would likely want to bargain for a lucrative contract and may prefer a less risky form of compensation with less compensation related to performance. The outcome of this negotiation will likely depend on the bargaining power of the successor relative to that of the board.

Using a sample of 508 successions over a 12-year period, we find that successors earn more, on average, in total compensation than their predecessors. The non-performance-related portion of compensation decreases for the successors, but their pay that is sensitive to performance increases. The increase in pay related to performance occurs more often in firms with stronger boards (proxied by a factor that combines several measures of board strength). These boards likely have increased bargaining power and are more successful in redesigning the successor's contract to better relate pay to performance. However, we find some evidence that outside successors have greater bargaining power than insiders. Compared to inside successors their contracts have relatively greater fixed salary, less pay-at-risk, and are not as strongly aligned with the predecessors' contracts.

2. Theoretical development

In the sections below, we first discuss agency problems and compensation. We then relate these issues to turnover and succession and discuss how the turnover/succession event gives the board an opportunity to realign the CEO compensation contract.

2.1. Agency problems and compensation

When managers do not operate firms to maximize shareholder wealth, agency problems result and shareholders bear these costs. There are both external solutions to agency problems (e.g. takeovers, proxy fights, etc.) and internal solutions. One internal solution to the agency problem is the development of compensation plans linking management's compensation to the firm's performance. This internal solution, pay-for-performance compensation, may be more effective

[2] Murphy (2002) does compare inside successor compensation to that of outsiders, but it is not the primary focus of his study.

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than costly external solutions, such as the threat of takeover.[3] However, designing a plan that encourages a CEO to maximize shareholder wealth is complex and if poorly designed may lead to managerial entrenchment and poor performance.

There has been considerable research on the design of CEO compensation packages. Morgan and Poulsen (2001) find that compensation plan announcements that align managerial compensation to shareholder interests are associated with positive abnormal returns. Thus, shareholders seem to benefit when their CEO's compensation depends on company performance.

CEOs on the other hand, may prefer to be paid in a less risky manner. That is, a CEO would likely rather be paid well regardless of performance. When the CEO's pay is tied to performance, the CEO runs the risk of not being paid as well should firm performance fall short of expectation.

Empirical research supports this contention. For example, Toyne, Millar, and Dixon (2000) show that entrenched CEOs bias their compensation structure towards low-risk components that are not influenced by performance. In addition, Newman and Mozes (1999) show that when insiders are on the compensation committee, compensation packages are less likely to align managerial compensation to shareholder wealth. Yermack (1997) finds that the timing of option awards is associated with subsequent positive increases in stock performance. Managers that have future knowledge of performance improvements in their firms may try to influence their compensation committees to award them more performance-based pay, as a low-risk method of capitalizing on investors' reactions to the good news.

Since CEOs want low-risk compensation and shareholders would likely prefer a CEO compensation structure that is sensitive to performance, the divergence must be resolved by negotiations between the CEO and the board. A board may find it somewhat difficult to restructure an incumbent CEO's contract due to inertia and complacency and the CEO's influence with the board and the compensation committee. Unless the CEO is unhappy with the current contract, the CEO may use this influence to either stall the renegotiation process or to redesign the pay package to reflect the CEO's own interests.

2.2. *Succession, compensation, and inertia*

There is an expression, "don't fix it, if it 'ain't' broken". This expression may, perhaps be true for boards and CEO compensation decisions. When a board perceives that a company is running well and that the CEO is performing well, the board is unlikely to want to restructure the CEO's compensation package. When the board perceives that the compensation package did not align the CEO to shareholder interests, the board may be more likely to restructure the package. Changing the compensation package with the incumbent CEO may be difficult, bring conflict between the CEO and the board, and will certainly involve difficult negotiation. However, at the time of CEO turnover, the board has an opportunity to make changes without conflict with the incumbent and possibly powerful incumbent CEO.

2.3. *The effect of turnover and succession on compensation*

When a CEO leaves an organization and the board appoints a successor, a new compensation contract can be constructed. The potential successor will negotiate with the board on compensation

[3] This point has been debated. For example, Bebchuk and Fried (2004) argue that boards do not negotiate with CEOs at arms-length and that powerful managers can heavily influence their pay.

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issues. A candidate that has a strong bargaining position may be able to construct the new contract to be less risky. That is, if the CEO's position is strong enough, the contract may be more oriented toward fixed salary. On the other hand, a powerful, active, and independent board will be more likely to have a strong bargaining position and will negotiate for increased pay performance sensitivity. How much change occurs from the predecessor's contract to the successor's contract will likely depend on many factors. These factors include the financial performance of the firm under the predecessor, whether the turnover was voluntary or forced, whether the successor is an insider or outsider, the structure and power of the board, and the structure and power of the compensation committee. We discuss these factors, below.

2.3.1. Prior performance

Prior performance seems to be one of the key factors that determine when a turnover/succession takes place (Fee & Hadlock, 2004). As such, it may affect the probability of a change in the compensation structure for the successor CEO. When prior performance has been good, the board may see no need to change the compensation structure of the successor relative to that of the predecessor CEO. When the prior compensation scheme was successful in the eyes of the board, it is less likely that the board will instigate change. However, when prior performance did not meet the board's expectations, the board may want to restructure the compensation package for the new CEO, linking it more closely with performance. We, therefore, propose that when performance has been poor, successor compensation will be more performance sensitive than that of the predecessor.

2.3.2. Forced versus voluntary turnover

When boards are unhappy with CEO performance, the board can choose to fire the CEO. CEO dismissal typically occurs following poor financial performance (e.g. Davidson, Worrell, & Dutia, 1993; Lehn & Makhija, 1996; Parrino, 1997; Rowe & Davidson, 2000; Weisbach, 1988). Shen and Cannella (2002) argue that when CEO performance is poor, outside directors align with other senior executives to oust the incumbent CEO.

Vancil (1987a) and Naveen (2006) argue that succession planning is important in implementing relay succession. The succession process often begins several years before the succession event (Charan, 2005). However, CEO dismissal disrupts the normal succession process (Hermalin, 2005). For example, Intintoli (2006) finds that marathon successions in which a temporary successor serves until the board hires a permanent successor is more likely following CEO dismissal. In addition, following CEO dismissal, director turnover increases (Farrell & Whidbee, 2000), and following turnover, firm asset structure changes via increased divestitures (Weisbach, 1995). Therefore, following dismissal, the board may see the opportunity to restructure the new CEO's compensation contract relative to that of the predecessor.

Since a CEO is normally fired for poor financial performance, the board of directors is likely looking for solutions. Hiring a new CEO may be the first step. A likely second step is to give the new CEO a compensation contract that more closely aligns the successor's interests to those of the shareholders. That is, the successor's compensation is likely to be more closely aligned and sensitive to performance than that of the fired predecessor.

2.3.3. Successor origin

Whether the board replaces the predecessor with an insider or outsider may influence the decision on whether to change the CEO compensation contract. Kesner and Sebora (1994), in a review of the succession literature, argue that prior financial performance influences the board's

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decision concerning CEO origin. Approximately 80% of CEO successors in large U.S. firms are insiders (Agrawal, Knoeber, & Tsoulouhas, 2006), but outside succession occurs more frequently following poor performance (Boeker & Goodstein, 1993; Cannella & Lubatkin, 1993; Davidson et al., 1993; Parrino, 1997). It is likely that the poor performance drives the perceived need for change, and influences the decision to hire an outsider.

Vancil (1987a) argues that bringing in an outside CEO "is a signal that major change is necessary and that no insider can bring the fresh perspective that is required" (p. 57). The need for change or the appearance of change can manifest itself in many ways. For example, Zajac and Westphal (1996) show that when boards hire outside CEOs, the successor is more likely to be demographically different from the predecessor than when the board promotes an insider. Vancil (1987b) also argues that hiring an outsider "crystallizes the constant tension between continuity and change" (p. 112). Thus, hiring an outsider may not only result from a need for change but also give the board an opportunity to instigate change in the company. During this period as change is about to occur, the board has the opportunity to redesign the outside successor's contract.

On the other hand, boards hire inside successors when they desire some continuity (Kesner & Sebora, 1994). If directors perceive that there is little need for change, the board may be less likely to change the compensation structure of the inside successor relative to that of the predecessor.

There is another side to successor origin. An outside candidate has greater bargaining power than would an inside candidate (Worrell, Nemec, & Davidson, 1997). The outsider would generally have a position at another firm, is likely successful in this position, and may already be well compensated. These factors should increase the bargaining power of the candidate relative to that of the board. If this is the case, then outside successors would have contracts that are less sensitive to performance.

2.3.4. Board and compensation committee structure

Hermalin and Weisbach (2000) argue that the proportion of independent outside directors on a board does not seem to influence overall firm performance. However, outside directors have been shown to be situationally important. When decisions with agency cost implications arise, outside directors appear to make decisions favoring shareholder wealth. Independent directors must also be concerned about maintaining their reputations as effective monitors. Independence likely gives the board increased bargaining power. Boards with a greater percentage of outside directors will be more likely to align the successor's compensation with the interests of shareholders.

This does not mean that successor compensation will be lower than that of the predecessor when outsiders dominate the board. Lower pay for the successor may not benefit shareholders. A highly paid successor who manages to increase the firm's performance, earnings, and stock price will be better for the shareholders than a mediocre, low-paid successor who fails to increase shareholders' wealth. Instead of lower pay, greater board independence will likely align the successor's contract more closely with performance.

Similarly, the composition of the compensation committee can influence the design of the new CEO's compensation package. Insiders report to the CEO, and affiliated directors may be related to managers or have business relations with the firm or CEO. Insider and affiliated directors may, therefore, have a vested interest in taking the CEO's side. They may be very generous when it comes to the CEO's compensation package in part because the CEO can influence their compensation. Newman and Mozes (1999) indicate that when insiders are on the compensation committee, CEO compensation practices are more favorable for the CEO. Thus, a compensation committee dominated by insiders may increase the bargaining power of the candidate whereas one dominated by outsiders would increase the bargaining power of the board.

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The presence of inside and affiliated directors on the compensation committee is good news for the successor. We expect that compensation committees that are dominated by insiders and/or affiliated directors will reduce the pay–performance sensitive portion of the successor's total compensation to lower the successor's compensation risk.

Vafeas (1999) demonstrated that board meeting frequency seems to better align management toward shareholder interests and increases firm performance. As a result, a board that meets more frequently may be likely to design the successor's contract to be more sensitive to performance. Similarly, Xie, Davidson, and DaDalt (2003) show that audit committees that meet more frequently reduce the likelihood of earnings management. A more active compensation committee may be more likely to align the CEO's contract toward performance.

2.3.5. Number of titles held

A CEO that is also the Chair has greater responsibilities and duties. Given these added duties and responsibilities, it is likely that a dual CEO/Chair executive will be paid more than a non-dual CEO. In addition, if the board considers a candidate for a dual position, this will likely increase the candidates bargaining power. Research supports this contention. For example, Sridharan (1996) indicates that dual CEO/Chairs have more lucrative compensation packages than non-dual CEOs.

It is not uncommon for a CEO to be promoted to the dual position of CEO/Chair and it does not necessarily harm shareholders (Brickley, Coles, & Jarrell, 1997). CEO duality is considered to be a normal part of relay succession as outlined in Vancil (1987a). As part of this succession process, Chairs often relinquish the CEO title to their successor but stay on as Chair. The successor CEO would not yet be Chair, and would not have the duties and responsibilities of the former CEO (who was also Chair). Given the reduced responsibilities, the new CEO when there is a separate Chair may be compensated at a lower rate and with a different compensation contract than the former dual CEO/Chair.

Alternately, a non-dual CEO could be replaced and the new CEO could assume the dual position. Here, the new CEO would have greater responsibilities than the predecessor and may, as a result, have greater compensation.

We, therefore, expect that when the number of titles of the successor decreases (increases) that total compensation will decrease (increase). Changing the number of titles might also change the way the contract's pay–performance sensitivity is structured.

3. Sample selection and data sources

We obtain our sample from Standard and Poor's *ExecuComp*. *ExecuComp* includes annual data from proxy statements for the five highest paid executives for the S&P 500, the S&P MidCap 400, and the S&P SmallCap 600. The version of *ExecuComp* that we use has data for 2565 companies. The database includes compensation data from 1992 to 2003 and lists CEO successions that occur for these firms during this time period.

Between 1992 and 2003, we identified 613 firms that had 736 CEO successions. We use the "SIC" column in the *ExecuComp* database which provides the last four-digit Standard Industrial Classification code of the firms to eliminate regulated financial services firms (SIC 6020-6799) and public utilities (SIC 4911-4932). Regulated firms likely have systematically different compensation schemes due to restrictions on their investment opportunity sets (DeFusco, Zorn, & Johnson, 1991; Gaver & Gaver, 1993; Smith & Watts, 1992). After eliminating regulated financial services firms (14 firms) and public utilities (47 firms) the sample consists of 552 firms and

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667 successions. We use the firms' proxy statements to collect information that is not on the *ExecuComp* database. Proxy statements were not available for 146 successions so leaving us with 521 successions. Finally, we also eliminate successions in which total compensation or salary of the successor or the predecessor was 0, and we eliminated successions when one of them is a founder or family member of a founder.[4] Our final sample has 508 successions.

We examine the changes in the compensation structure around CEO succession within the same firm. Thus, we are able to control for firm-specific characteristics.

We examine the various components of compensation surrounding the succession for both the predecessor and the successor (i.e. years −1 and +1). We do not directly analyze the succession year, year 0, for several reasons. First, the transition year compensation data may include partial year compensation for successors if they did not hold the post for the entire year. Second, when a successor CEO was an executive with the firm prior to the succession (e.g. COO, CFO, President) their compensation for year 0, as reported in ExecuComp, includes both the compensation for part of the year for their job as CEO and for part of the year for their previous position. Third, Yermack (2006) indicates that 80% of departing CEOs receive separation contracts. This would likely occur in year 0 further distorting CEO pay for that year. Finally, Fee and Hadlock (2003) report that outside successors often receive large grants of stock or options particularly if they had to give-up stock and options at their prior firm. These grants also generally occur in year 0.

Since we compare compensation in year −1 to year +1, we adjust the compensation for inflation. We use the Consumer Price Index for this purpose.

3.1. Data sources

3.1.1. Identifying the different components of total compensation

To determine the salary of the CEO we examine the column "SALARY" in the *ExecuComp* database which provides the dollar value of the base salary earned by the CEO during the fiscal year. To determine the bonus of the CEO we examine the column "BONUS" in the *ExecuComp* database which provides the dollar value of the bonus earned by the CEO during the fiscal year. To determine the value of the CEO restricted stock grants we examine the column "RSTKHLDV" in the *ExecuComp* database which provides the aggregate value of restricted stock holdings granted to the CEO at the end of the year. In order to determine the value of the CEO option grants we examine the column "BLK_VALUE" in the *ExecuComp* database which provides the aggregate value of stock options granted during the year as valued using *S&P*'s Black–Scholes methodology. The "BLK_VALUE" indicates the total value of all options received during the year. The calculation of this figure takes into account the volatility of each individual company. To determine the value of the other CEO compensation we examine the column "OTHANN" in the *ExecuComp* database which provides the dollar value of other annual CEO compensation not properly categorized as salary or bonus. This includes items such as: perquisites, other personal benefits, and tax reimbursements.

[4] Successions of founder CEOs and their family members would bring additional issues to the project. Founder-managed firms are often more efficient than other firms, founder CEOs are often paid differently than non-founders due in part to their equity share in the firm and the market reacts more negatively to founder successions than to non-founder successions (McConaughy, Walker, Henderson, & Mishra, 1998; Smith and Amoako-Adu, 1999). To avoid possible bias to our sample from founder successions we exclude them from the analysis.

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3.1.2. Determining the pay-at-risk portion of total compensation

Prior research has established that the board of directors awards stock compensation to managers to heighten the wealth consequences of their performance. We recognize that there may be other considerations that influence the award of stock-based pay, for example, the possibility for firms and executives to realize joint tax savings from arrangements such as stock options (Miller & Scholes, 1982).

Influential principal-agent models, beginning with Jensen and Meckling (1976) and Holmstrom (1979), often emphasize the benefits of managerial ownership. Stock options and restricted stock have been used by most major U.S. firms for this purpose (Yermack, 1997; Yermack & Ofek, 2000). Restricted stock are shares whose sale is barred for 3–5 years. Their sensitivity to firm value exceeds that of stock options. As in Yermack and Ofek (2000) and Yermack (1997), we assume that the pay–performance sensitive portion or pay-at-risk portion of the CEO's total compensation in a certain year is the summation of the stock option grants and restricted stock grants awarded to the CEO during that particular year. However, we also add CEO bonus to this summation since it is also dependent upon performance. We measure pay-at-risk as a percent of total compensation rather than using pay–performance sensitivity as in Yermack (1997) because we are not measuring the impact of compensation on performance. Instead, we measure the relative amount of compensation that is related to performance to compare this amount to that of the predecessor.

We exclude "reload" options from the sample. Reloads are given by some companies when an executive exercises unexpired options and pays the exercise price by surrendering shares of company stock. Including reloads in the sample could bias the results since they create a mechanical relation among option awards, option exercises, and stock ownership.

For each corporation, we obtain the successor's and predecessor's salary and bonus, restricted stock grants, option grants, and other annual compensation. We assume that the stock held prior to a particular year represents accumulated wealth not current compensation. Only the addition to stockholdings represents stock compensation for a particular year. Option values are the Black–Scholes values of options granted during the fiscal year.

3.1.3. Change in titles

To measure the change in the number of titles we create a variable called change in titles. We classify the change in titles as −1 if the predecessor CEO was both Chair and CEO and the successor is just CEO. There are 296 cases of this. If the number of titles does not change (e.g. both successor and predecessor are only CEO or are both CEO and Chair), we classify it as 0. There are 146 cases of this. Finally, if the predecessor was CEO but the successor is CEO and Chair, we classify this variable as +1. There are 66 cases of this. As shown in Table 1, the mean for this variable is −0.45 for the total sample. For outside successors the mean is −0.16 and it is −0.56 for inside successors. The difference in means for insiders and outsiders has a *t*-statistic of −5.51 (significant at 0.001). So on average, the number of titles deceases for successors, but the number decreases less for outside successors than for inside successors.

3.1.4. Classifying forced and voluntary CEO successions

To determine the type of succession, we examine *Wall Street Journal Index (WSJI)* and the *Wall Street Journal* (*WSJ*) for the reasons for the successions. From the news stories, we classify forced successions as all CEO successions other than those arising from retirement, death, illness, or those involving the CEO's departure for a better and more prestigious position in another firm. As in Parrino (1997), we consider the age 60 to be the normal retirement age for a CEO. We

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Table 1
Descriptive statistics

	Mean	Maximum	Minimum	S.D.	Outside succession	Inside succession	*t*-Statistic
Change in titles	−0.453	1.00	−1.00	0.7132	−0.1655	−0.5610	−5.51***
Forced turnover	0.10	1.00	0.00	0.303	0.15	0.08	−1.99*
Outside successor	0.274	1.00	0.00	0.4463	1.00	0.00	n/a
Prior CEO	0.1004	1.00	0.00	0.30082	0.3669	0.00	−8.943***
New CEO designated heir	0.47	1.00	0.00	0.500	0.00	0.65	26.17***
Board meetings	7.29	22.00	1.00	2.829	7.86	7.08	−2.75**
Percent of outside directors	0.617	0.93	0.00	0.17214	0.6333	0.6104	−1.34
Average tenure of outside director	7.591	24.33	0.00	3.84259	7.0914	7.7788	1.762†
Board size	10.10	25.00	3.00	3.140	9.50	10.32	2.62**
Compensation committee size	3.71	11.00	0.00	1.506	3.67	3.72	0.38
Compensation committee meetings	3.69	13.00	0.00	2.406	4.00	3.58	−1.77†
Factor loading Board-strength	0.017	3.35	−3.53	0.9993	−0.0284	0.0346	0.62
Year 0-stock grants	0.052	0.75	0.00	0.1298	0.0651	0.0471	−1.25
Change in Ln of total assets	0.160	2.88	−1.70	0.3728	0.1053	0.1807	1.79†
Treynor measure$_{-1}$	−3.762	145.60	−833.33	62.3875	−10.8693	−1.2458	1.18
Year 0-option grants	0.445	1.99	0.00	0.43304	0.4914	0.4270	−1.38
Year −1-stock grants					0.0223	0.0135	−0.55
Year −1-option grants					0.3351	0.1933	n/a

The sample consists of 508 CEO successions from 1992 to 2003. "Change in titles" is equal to −1 if the predecessor was CEO and Chair and the successor is only CEO (296 successions), is equal to 0 if there is no change in titles (146 successions), and is equal to +1 if the successor is CEO and Chair and the predecessor was only CEO (66 successions). "Forced turnover" is equal to 1 for forced turnover (52 successions) and equal to 0 for voluntary turnover (456 successions). "Outside successor" is equal to 1 for outside successor (139 successions) and equal to 0 for inside successor (369 successions). "New CEO designated heir" is equal to 1 if the new inside CEO was the designated heir apparent (240 successions) and equal to 0 (268 successions) otherwise. "Change in Ln of total assets" is the difference between the natural log of the total assets from year −1 to +1 (508 successions). "Treynor measure$_{-1}$" is equal to the stock's return over the year prior to the successions divided by the stock's beta for year −1 (436 successions). "Board meetings" is the number of times the board met for year −2 (508 successions). "Percent of outside directors" is the percent of independent (outside) directors on the board for year −2 (508 successions). "Average tenure of outside directors" is the number of years the outside directors were board members for year −2 (508 successions). "Board size" is the number of directors on the board for year −2 (508 successions). "Compensation committee size" is the number of directors on the compensation committee for year −2 (508 successions). "Compensation committee meetings" is the number of times the compensation committee met for year −2 (508 successions). "Factor loading board-strength" includes the inverse of the number of directors on the board for year −2, the percent of independent (outside) directors on the board for year −2, the number of years the outside directors were board members for year −2, the number of times the board met for year −2, the inverse of the compensation committee size for year −2, and the number of times the compensation committee met for year −2 (484 successions). "Year 0-stock grants" is the successor's restricted stock at year 0 (493 successions). "Year 0-option grants" is the aggregate value of all options granted to the successor at year 0 (488 successions). "Year −1-stock grants" is the successor's restricted stock at year −1 (51 outside successions and 360 inside successions). "Year −1-option grants" is the aggregate value of all options granted to the successor at year −1 (51 outside successions and 360 inside successions). "Prior CEO" is equal to 1 if the outside successor held CEO position in his/her previous firm at years −1 and 0 (51 outside successions) and equal to 0 otherwise (457 successions).

* Significant at 0.05.
** Significant at 0.01.
*** Significant at 0.001.
† Significant at 0.10.

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code the variable as a 1 for forced turnover and 0 otherwise. As shown in Table 1 the mean for this variable is 0.10 for the total sample, and it is 0.15 for outside successors and 0.08 for inside successors. The *t*-statistic shows that the difference between the means for insiders and outsiders is significant.

3.1.5. Inside versus outside successors

If the board hires a CEO from outside the firm, we classify this as an outside successor and code the dummy variable as 1 for this case. There are 139 outside successors in our sample. We code insiders as a 0, and there are 369 insiders as shown in Table 1.

3.1.6. Designated heir

Some firms have formal succession plans. These plans influence the market's response to turnover (Behn, Riley, & Yang, 2005; Shen & Cannella, 2003). If a successor CEO is a designated heir, there may be less room for bargaining. So we include this variable in our regression model. We classify the heir apparent variable as in Cannella and Shen (2001). We define the heir apparent as an executive who is the only person appointed as the president and/or COO of the firm and who is at least 5 years younger than the CEO. We use the *Wall Street Journal* to obtain this information.

Heir anointment represents the beginning of the relay succession process and heir promotion represents the completion of the process as initially planned. Cannella and Shen (2001) point out that approximately one third of heirs apparent left their firms before being appointed to the CEO position. We only include observations were the relay succession was completed and the heir apparent was promoted to the CEO position. As shown in Table 1, this variable averages 0.47 for the total sample and 0.65 for the sample of insiders.

3.1.7. Measuring board strength

Board strength can be proxied by several variables. Rather than use separate measures of board strength in our regression models, we combine several measures of board strength with a factor analysis so that we have one board strength variable. Our proxies for board strength that we use in the factor analysis include the percent of independent directors on the board, the percent independent directors on the compensation committee, the average tenure of the independent directors, the size of the board, the size of the compensation committee, the number of board meetings and the number of compensation committee meetings. We measure each of these variables as discussed below.

We use the firms' proxy statements for year −2 and year 0 to determine the composition of the compensation committee and the composition of the board of directors and their effects on the predecessor's total compensation in year −1 as well as the successor's total compensation in year +1. We determine board composition in the preceding years because the CEO compensation package is determined during the previous year (Newman & Mozes, 1999; Sridharan, 1996). We classify directors as insiders (employed by the firm), affiliated (e.g. former employees, family members of employees, business relations with the firm), and independent as in Baysinger and Butler (1985) and Huson, Parrino, and Starks (2001). Outside directors average 61.67% of the boards in our sample.

Furthermore, we measure the average tenure of the outside board members since tenure may be considered another measure of board strength. As shown in Table 1, tenure averages 7.6 years for the total sample. We also consider board size and compensation committee size since board size has been shown to impact firm performance (Yermack, 1996), and we consider the number of board meetings and compensation committee meetings since they have been shown to impact firm

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performance (Vafeas, 1999; Xie et al., 2003). Board size averages 10.1 members in our sample and the boards meet 7.29 times per year. Compensation committees average 3.71 members and meet an average of 3.69 times.

We combine these individual variables with a factor model. We first construct each board variable so that a larger value implies greater board strength. We use the variables discussed above except we use the inverse of board size and inverse of compensation committee size so that a larger value equates to a stronger board. The factor analysis produces a factor loading variable whose value ranges from −3.53 to 3.35. A larger factor loading value implies a stronger board. Combining the board variables in this manner allows us to measure overall board strength in one variable.[5]

3.1.8. Prior performance

To measure prior performance, we create a Treynor measure for each firm for year −1. We compute the buy and hold return for this year and subtract the risk free rate. We then divide by the firm's beta coefficient. We obtain data for this measure from COMPUSTAT. The Treynor variable averages −3.76 for our firms.[6]

3.1.9. Outsider—CEO in prior firm

Boards likely set compensation based on the perceived ability of the successor. We cannot directly ascertain board member opinions about successors. However, we proxy this perception in two ways. For inside successors, as stated above, we control for whether or not the successor has been designated the heir apparent. It is unlikely a board would make this designation with an unfavorable opinion of the candidate. For outside successors, we control for whether the successor was a CEO in his/her prior firm. Candidates with CEO experience would likely be perceived as having the experience to run a company.

3.1.10. Possible sample bias

We realize that we have an *ExecuComp* selection bias in our results. Further research will be required to examine our hypotheses using a different sample whose firms are not listed on *ExecuComp* to determine any possible effects of this bias.

3.2. Methodology

To calculate the changes in compensation we determine the total value of the predecessor's and successor's compensation as the sum of: salary, bonus, the Black–Scholes value of options, the value of the restricted stock grants, and the value of other annual compensation. We then calculate the percentage of each of these components using total compensation as the denominator. The analysis focuses on percentages of compensation since percentages better capture the composition of the compensation package. The percentage of compensation also effectively controls for the systematic differences in the level of pay due to differences in firm size.

[5] We could have alternately created an index of our own from these variables, but this would have required our judgment and possible bias about which of these variables is more important in determining board strength.

[6] We also measured prior performance with an industry-adjusted ROA (Barber and Lyon, 1996). We obtain the ROA from COMPUSTAT. To adjust for industry, we divide each individual firm's ROA by the average ROA of its industry using four digit SIC codes where possible and three digit SIC codes when there are not at least three other firms in the same four digit SIC code. The overall results of this paper were qualitatively similar with this measure of performance.

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3.3. Control variables

We control for firm size, time, and prior stock and option grants. We discuss these items below.

3.3.1. Firm size

There is a well-documented positive relation between executive compensation and firm size (Chung & Pruitt, 1996; Jensen & Murphy, 1990; Murphy, 1985). We include the natural log of total assets to account for differences in firm size as in Murphy (1995), Yermack (1995), and Mehran (1995). We define this control variable as the difference between the log of the total assets of the firm for the year following the succession and the year prior to the succession.

3.3.2. Time variables

Since option compensation has increased over time, any increase in option-based compensation that we find could be due to this market trend. We include time-dummy variables in each regression. However, for ease of presentation, we do not show their estimated coefficients in the tables.

3.3.3. Prior stock and option grants

New CEOs may be given grants of stock and/or options in their first year (Fee & Hadlock, 2003). These grants may be large and would be designed to provide the new CEO with incentives to act like a shareholder. Outside successors may be given stock or options to compensate them for giving-up options from their former position. So we control for year 0 stock and option grants.

Furthermore, we control for year −1 stock and option grants for the firm for insiders in regressions for the insider subsample. We also control for stock and option grants of outsiders from their prior firm in year −1 for the outsider subsample. This provides us with at least a partial measure of the stock and options that the outside CEO must give-up when coming to the new firm.

4. Results

4.1. Comparison of predecessor and successor compensation

Table 2 contains descriptive statistics of the predecessor compensation components in year −1 as well as successor compensation components in year +1. We present dollar figures of each component, and in parenthesis, below the dollar amount, we show that component's percentage of total compensation. We use a paired-sample *t*-test to compare the means of the predecessor and successor compensation components. We also show the correlation coefficients of the predecessor and successor components.

The mean annual successor total compensation increases by nearly $1.1 million (69.3%) over the predecessor's total compensation, and this change is statistically significant (at the 0.001 level).[7] Thus, successors receive considerably more in total compensation than their predecessor. However, when we examine the various compensation components, we observe that these changes do not occur uniformly across the various compensation components. For example, successor

[7] Bebchuk and Grinstein (2005) find that from 1993 to 2003 executive pay has grown beyond what can be explained by changes in firm size, performance and/or industry classification. Our findings of pay increases for successors could be a reflection of this phenomenon.

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Table 2
Comparison of compensation data between predecessor and successor ceos

	Mean	Median	Maximum	Minimum	S.D.	Paired *t*-statistic	Correlation
Total compensation							
Predecessor	1549.93	984.79	15095.30	112.78	1745.05	4.02***	0.25***
Successor	2627.08	1422.42	124460.39	54.24	6263.53		
Salary							
Predecessor	406.14 (42.90%)	362.74 (37.40%)	2743.71 (100.00%)	41.67 (3.00%)	222.201 (24.91%)	1.96†	0.72***
Successor	420.20 (33.16%)	379.84 (27.03%)	1662.89 (100.00%)	45.62 (1.00%)	210.44 (22.35%)	(−7.87)***	(0.28)***
Bonus							
Predecessor	310.03 (19.55%)	183.66 (17.35%)	5241.34 (96.00%)	0.00 (0.00%)	436.53 (17.55%)	2.15*	0.41***
Successor	354.19 (18.64%)	237.23 (17.51%)	4255.32 (75.00%)	0.00 (0.00%)	414.89 (14.07%)	(−1.00)	(0.22)***
Other annual							
Predecessor	36.79 (1.76%)	0.00 (0.00%)	5343.43 (59.00%)	0.00 (0.00%)	257.99 (5.89%)	0.30	0.62***
Successor	39.49 (1.64%)	0.00 (0.00%)	2836.32 (56.00%)	0.00 (0.00%)	196.06 (5.69%)	(−0.35)	(0.16)***
Restricted stock							
Predecessor	95.56 (3.59%)	0.00 (0.00)	6759.62 (83.00%)	0.00 (0.00%)	455.13 (10.93%)	2.55*	0.09*
Successor	230.03 (5.41%)	0.00 (0.00%)	14325.00 (73.00%)	0.00 (0.00%)	1140.99 (13.21%)	(2.64)**	(0.17)***
Options							
Predecessor	480.98 (21.47%)	69.45 (9.04%)	9480.52 (90.00%)	0.00 (0.00%)	1138.64 (25.84%)	3.06**	0.18***
Successor	1233.24 (29.64%)	241.25 (25.06%)	118550.23 (98.00%)	0.00 (0.00%)	5624.07 (28.77%)	(5.42)***	(0.22)***
Pay-at-risk							
Predecessor	886.58 (44.61%)	414.79 (45.68%)	12190.00 (96.00%)	0.00 (0.00%)	1460.19 (25.85%)	3.67***	0.21***
Successor	1817.46 (53.69%)	633.30 (56.66%)	118550.23 (98.00%)	0.00 (0.00%)	5839.62 (26.14%)	(6.18)***	(0.17)***

The sample consists of 508 CEO successions from 1992 to 2003. The predecessor compensation is measured for the fiscal year prior to the succession. Compensation for the successor is for the year following the succession. "Total compensation" is the sum of salary, bonus, other annual, restricted stock, and options. Compensation components are shown in dollar value (000) and as a percent of total compensation in parenthesis. Pay-at-risk is the summation of bonus, restricted stock, and options. We use *t*-statistics to compare the dollar value (percent of total compensation) between the successor and predecessor compensation components.

* Significant at 0.05.
** Significant at 0.01.
*** Significant at 0.001.
† Significant at 0.10.

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salary increases only slightly (3.4%) in dollar amount from the predecessor salary (significant at the 0.10 level). However, it decreases from 43% to 33% of total compensation from predecessor to successor, and this change is statistically significant (at the 0.001 level). Bonus increases in dollar amount and this increase is significant (at the 0.05 level). Other annual compensation does not change significantly in dollar or percent of total compensation.

The largest increases in compensation occur in the equity-based pay. The mean dollar amount of restricted stockholdings increases by 141.9% for successors (significant at the 0.05 level). Similarly, the dollar amount of option grants more than doubles (156.4% increase) for successor over that of the predecessor (significant at the 0.01 level). Finally, total pay-at-risk increases by 104.9% in dollar amount and from 44.6% to 53.7% of total pay and both changes are significant (at the 0.001 level). Our overall conclusion from Table 2 is that successor compensation contracts seem to be more aligned with firm performance and less oriented toward a fixed salary than that of their predecessors.

4.2. Determinants of successor compensation

In Table 3, we estimate three sets of models. The first set of two models is for total compensation of the successor, the second set is for salary and pay-at-risk of the successor as percent of total compensation and the third is for salary and pay-at-risk as a percent change from that of the predecessor. We focus on these two compensation components since salary is not directly related to performance while pay-at-risk is directly affected by the firm's performance. The independent variables include the predecessor's compensation component, a change in title variable, a forced turnover binary variable (taking the value of 1 for forced turnover and 0 for voluntary), a binary variable for successor origin (taking the value of 1 for outside and 0 for inside successors), and a variable taking the value of 1 when a successor is a designated heir. We also include the change in log of total assets from year −1 to +1, the firm's Treynor measure for year −1, successor stock grants and successor option grants for year 0, and the factor loading variable measuring board strength.

In our first set of regressions, we focus on total compensation of the successor first as a dollar amount and then as a percent change from the predecessor. In the first model, we observe that the estimated coefficient for the predecessor's total compensation is positive and significant (at the 0.001 level). Thus, the predecessor's compensation is a strong determinant of the successor's compensation. We also find that the estimated coefficient of the change in the log of total assets is positive and significant (at the 0.10 level). Growth in firm size increases compensation. In the second model, with the change in total compensation from successor to predecessor as the dependent variable, only the estimated coefficient of the change in the log of total assets is significant.

In the next set of regressions, we estimate separate models for successor salary and pay-at-risk as a percent of total compensation. We observe some interesting contrasts for these two models. For both models, the estimated coefficients for the predecessor's compensation component are positive and highly significant (at the 0.001 levels). How the predecessor was paid (in salary or pay-at-risk) is a determinant on how a successor is paid. However, for the binary variable taking the value of 1 for outside successors, the estimated coefficient is positive for the salary model and negative for the pay-at-risk model. This result implies that outsiders receive relatively greater salary and less pay-at-risk than inside successors. The estimated coefficients for change in log of total assets are also different. It is negative and significant for salary and positive and significant for pay-at-risk. When asset size increases, salary does not increase, but pay-at-risk does

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Table 3
Regression analysis: dependent variable is the successor compensation as percent of total compensation—total sample

	Dependent variable equals successor total compensation & percent change in successor total compensation over predecessor total compensation		Dependent variable equals successor compensation component—percent of total compensation		Dependent variable equals percent change in successor compensation over predecessor compensation	
	Total compensation	Change in total compensation (%)	Salary (%)	Pay-at-risk (%)	Change in salary (%)	Change in pay-at-risk (%)
Constant	803.716 (0.78)	1.621 (1.95)†	0.221 (6.44)***	0.514 (11.94)***	−0.048 (−0.69)	12.228 (2.81)**
Predecessor's component	0.787 (4.10)***	–	0.234 (5.22)***	0.170 (3.42)***	–	–
Change in titles	−181.437 (−0.36)	−0.608 (−1.37)	−0.009 (−0.58)	−0.003 (−0.18)	0.019 (0.52)	−0.164 (−0.07)
Forced turnover	944.398 (0.84)	−0.308 (−0.31)	0.012 (0.34)	−0.016 (−0.37)	−0.049 (−0.59)	0.199 (0.04)
Outside successor	341.949 (0.36)	0.275 (0.33)	0.076 (2.54)*	−0.090 (−2.53)*	0.323 (4.65)***	−3.716 (−0.85)
Designated heir	506.117 (0.59)	−1.346 (−1.79)†	0.022 (0.80)	−0.074 (−2.28)*	−0.001 (−0.01)	−8.351 (−2.14)*
Change in Ln of total assets	1982.432 (1.93)†	1.554 (1.71)†	−0.080 (−2.44)*	0.122 (3.13)**	0.152 (2.02)*	−1.648 (−0.34)
Treynor measure$_{-1}$	0.137 (0.03)	0.000 (0.10)	0.000 (0.82)	−0.000 (−1.14)	0.000 (0.53)	0.007 (0.29)
Year 0-stock grants	−31.407 (−0.01)	−0.688 (−0.29)	−0.127 (−1.47)	0.231 (2.25)*	0.129 (0.65)	−1.511 (−0.12)
Year 0-option grants	−102.896 (−0.13)	−0.820 (−1.16)	−0.028 (−1.07)	−0.003 (−0.11)	0.009 (0.15)	−5.113 (−1.38)
Factor loading board-strength	400.303 (1.15)	−0.285 (−0.95)	−0.012 (−1.13)*	0.004 (0.28)†	−0.071 (−2.82)**	−0.975 (−0.62)
Adjusted R^2 (F)	4.4% (2.30)**	1.9% (1.59)†	9.9% (4.12)***	6.1% (2.85)***	8.4% (3.81)***	−0.1% (0.97)

The sample consists of 508 CEO successions occurring between 1992 and 2003. *Dependent variables*: "Total compensation" is the dependent variable for the first regression and represents the successor's total compensation (in thousands of dollars). "Change in total compensation (%)" is the dependent variable for the second regression and represents the difference between the successor's and predecessor's total compensation measured as a percentage of the predecessor's total compensation. "Salary (%)" is the dependent variable for the third regression and represents the successor's salary measured as a percent of the successor's total compensation. "Pay-at-risk" is the dependent variable for the fourth regression and represents the successor's pay-at-risk measured as a percent of the successor's total compensation. "Change in salary (%)" is the dependent variable for the fifth regression and represents the difference between the successor's and predecessor's salary measured as a percentage of the predecessor's salary. "Change in pay-at-risk (%)" is the dependent variable for the sixth regression and represents the difference between the successor's and predecessor's pay-at-risk measured as a percentage of the predecessor's pay-at-risk. *Independent variables*: "Predecessor's component" is the predecessor's total compensation (in thousands of dollars) in the first regression, is the predecessor's salary as a percent of the predecessor's total compensation for the third regression and is the predecessor's pay-at-risk compensation as a percent of the predecessor's total compensation for the fourth regression. "Change in titles" is equal to −1 if the predecessor was CEO and Chair and the successor is only CEO, is equal to 0 if there is no change in titles, and is equal to +1 if the successor is CEO and Chair and the predecessor was only CEO. "Forced turnover" is equal to 1 for forced turnover and equal to 0 for voluntary turnover. "Outside successor" is equal to 1 for outside successor and equal to 0 for inside successor. "Designated heir" is equal to1 if the new inside CEO was the designated heir apparent and equal to 0 otherwise. "Change in Ln of total assets" is the difference between the natural log of the total assets from year −1 to +1. "Treynor measure$_{-1}$" is equal to the stock's return over the year prior to the successions divided by the stock's beta for year −1. "Year 0-stock grants" is the successor's restricted stock at year 0. "Year 0-option grants" is the aggregate value of all options granted to the successor at year 0. "Factor loading board-strength" includes the inverse of the number of directors on the board for year −2, the percent of independent (outside) directors on the board for year −2, the number of years the outside directors were board members for year −2, the number of times the board met for year −2, the inverse of the compensation committee size for year −2, and the number of times the compensation committee met for year −2. We also control for time with annual year dummy variables. For example: "1993 $D = 1$" is equal to 1 for successions that occur in 1993 and equal to 0 otherwise, "1994 $D = 1$" is equal to 1 for successions that occur in 1994 and equal to 0 otherwise, etc. We ran collinearity diagnostics and all variance inflation factors (VIF) were less than 10.

* Significant at 0.05.
** Significant at 0.01.
*** Significant at 0.001.
† Significant at 0.10.

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increase. The board strength variable has a negative estimated coefficient for salary and a positive estimated coefficient for pay-at-risk. Both are significant (at the 0.05 and 0.10 levels, respectively). Stronger boards are associated with increased pay-at-risk for successors and decreased salary for successors. We interpret this result as evidence consistent with the idea that stronger boards are better able to negotiate performance-related compensation. If this compensation can improve financial performance of firms, then stronger boards may be good for shareholders. That is, the stronger boards may be better able to pursue shareholder wealth maximization. Finally, we find that the estimated coefficient for designated heirs is negative and significant (at the 0.05 level) in the pay-at-risk model, but is insignificant in the salary model. Designated heir successors receive less pay-at-risk than non-designated heirs.

In the final set of regressions we estimate models for the percentage change in successor salary and successor pay-at-risk over that of their predecessors. Here, we are focusing on the change from predecessor to successor while in the earlier models we focused on how compensation was portioned between salary and pay-at-risk. For the change in salary for the successor, the estimated coefficient for outside successors is positive and significant (at the 0.001 level). Thus outside successors receive a greater increase in salary over the predecessor than do inside successors. Similarly, salary increases for the successor when the log of assets increases.[8] Finally, the estimated coefficient for board strength is negative and significant (at the 0.01 level). Stronger boards decrease salary more (or increase it less) for successors. For the change in pay-at-risk, only the estimated coefficient for the designated heir variable is significant. It is negative. The change in pay-at-risk for successors is negatively related to being a designated heir.

Our overall conclusion from Table 3 is that the successor's compensation and how it is portioned between salary and pay-at-risk is highly dependent on the predecessor's compensation and compensation structure. Outside successors receive greater salary and less pay-at-risk and stronger boards pay less salary and more pay-at-risk than weak boards.

4.3. Robust check

The decision to hire an outside candidate and the amount and structure of the compensation may be endogenously determined. To address this issue, we first estimate a probit model where the dependent variable is a 1 for outside hires and a 0 for inside hires. From this probit, we estimate the probability that a firm would hire an outside successor. We then replace the variable "outside successor" with this probability. We re-estimate our regression models as in Table 3. These tables are available from the authors upon request. We find qualitatively similar results in these models except that the estimated coefficient for the probability to hire an outsider is statistically insignificant. Prior research has shown that conditions surrounding the hiring of an outside successor are different from those when boards hire an inside candidate. Therefore, we explore differences in compensation between inside and outside successors below.

4.4. Compensation for successors—inside versus outside succession

We have argued that boards might hire outside successors to instigate change and that boards often hire outsiders when prior performance has been poor. As a result, these boards may design

[8] When salary as a percent of total compensation was the dependent variable, the change in the log of assets had a negative estimated coefficient. Here, it is positive. So when asset size increases, salary as a percent of total compensation decreases, but it increases in relation to the salary of the predecessor.

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outside successor contracts differently from inside successors. Being hired into a company with poor performance can be risky for outside successors and they may want to be compensated for this risk. In addition, outside CEO candidates generally have greater bargaining power than insiders. As a result, they may be able to reduce the risk of their pay contracts better than an inside candidate.

In Table 4, we report a comparison of changes in contracts for inside and outside successors. For each successor, we subtract the dollar amount of the predecessor's compensation component (e.g. salary) from the corresponding dollar amount for the successor. We also present this data as a percent of total compensation in parenthesis below the dollar amount.

The inside successor salaries decrease by over $9000, while outside successor salaries increases by over $77,000. This difference is statistically significant ($t=-5.21$, significant at the 0.001 level). The mean inside successor salary component as a percent of total compensation decreases from that of the predecessor by 10.4%. The mean salary component decreases by 8.6% for outside successors relative to that of their predecessor, but this change is insignificant.[9] This result implies that while salary as a percent of total compensation decreases for both insiders and outsiders, the mean salary component decreases more for inside successors than for outside successors. In addition, the dollar amount of salary increases more for outsiders. This result is consistent with the idea that outside successors have greater bargaining power and are able to negotiate greater salary, compensation that is unrelated to performance.

Bonus compensation increases by over $10,000 for insider successors but decreases as a percent of total compensation. For outsiders, bonus compensation increases by more than $133,000 and increases by 2.96% of total compensation. The differences between insiders and outsiders are statistically significant.

Options as a percent of total compensation increase by 10.8% for inside successors relative to that of their predecessor, but only increase by 1.4% for outside successors. However, this difference is statistically significant (at the 0.01 level). The dollar amount of options increases more for inside successors than for outsider successors as well.

Similarly, total pay-at-risk as a percent of total compensation increases by 10% for inside successors, but it increases only 6.9% for outside successors. This difference is not significant. The dollar value of pay-at-risk also increases nominally more for inside successors than for outsiders but the difference is insignificant. While boards decrease the fixed salary component and increase the pay-at-risk component for both inside and outside successors relative to their predecessor, the changes are greater for inside successors than for outside successors. Inside successors have a larger increase in options while outsiders have a larger increase in bonus.

These results are consistent with our expectations that an outside CEO candidate will have greater bargaining power than an inside candidate, but they are inconsistent with the alternate hypothesis that boards will more closely align an outsider's contract to performance. The outside candidates are normally employed elsewhere and may, as a result, have a strong bargaining position. In addition, the outsider may observe the board's desire and the need for change in the company and realize that they are stepping into a potentially risky situation. As a result of the

[9] While the dollar amount of outside successor salary increases from that of the predecessor, the percent of total compensation decreases. This occurs because the denominator for predecessors is total predecessor compensation and the denominator for successors is total successor compensation. To illustrate, AAR Corp, the successor salary was $550 and the successor total compensation was $4340.50. The predecessor salary was $498.4 and total compensation was $1461.53. The difference in dollar amount is positive ($51.6) and the difference as percent of total is negative (−0.21).

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Table 4
Successor compensation components for inside vs. outside successors

	Successor compensation component minus predecessor component				
	Inside succession		Outside succession		*t*-Statistic
	Mean	Median	Mean	Median	
Salary	−9.79 (−10.38%)	0.96 (−6.62%)	77.37 (−8.63%)	48.84 (−6.04%)	−5.21*** (−0.54)
Bonus	10.66 (−2.33%)	16.65 (−0.62%)	133.07 (2.96%)	95.20 (1.13%)	−3.06** (−2.45)*
Other pay	−1.49 (−0.09%)	0.00 (0.00%)	13.83 (−0.18%)	0.00 (0.00%)	−0.97 (0.10)
Restricted stock	131.48 (1.56%)	0.00 (0.00%)	142.38 (2.59%)	0.00 (0.00%)	−0.11 (−0.62)
Options	862.88 (10.79%)	62.06 (2.98%)	458.59 (1.41%)	0.00 (0.00%)	1.11 (2.61)**
Pay-at-risk	1005.03 (10.01%)	151.07 (7.05%)	734.04 (6.96%)	243.27 (5.10%)	0.70 (0.84)

The descriptive statistics are for a sample of 369 inside CEO successions and 139 outside CEO successions occurring between 1992 and 2003. The compensation for the predecessor is measured as of the fiscal year prior to the CEO succession. The compensation for the successor is measured as of the fiscal year following the CEO succession. "Salary" is the dollar value (in thousands of dollars) of the difference between the successor's and the predecessor's salary (is the difference between the successor's salary as a percent of the successor's total compensation and the predecessor's salary as a percent of the predecessor's total compensation). "Bonus" is the dollar value (in thousands of dollars) of the difference between the successor's and the predecessor's bonus (is the difference between the successor's bonus as a percent of the successor's total compensation and the predecessor's bonus as a percent of the predecessor's total compensation). "Other pay" is the dollar value (in thousands of dollars) of the difference between the successor's and the predecessor's other annual compensation (is the difference between the successor's other annual compensation as a percent of the successor's total compensation and the predecessor's other annual compensation as a percent of the predecessor's total compensation). "Restricted stock" is the dollar value (in thousands of dollars) of the difference between the successor's and the predecessor's restricted stock (is the difference between the successor's restricted stock as a percent of the successor's total compensation and the predecessor's restricted stock as a percent of the predecessor's total compensation). "Options" is the dollar value (in thousands of dollars) of the difference between the successor's and the predecessor's options (is the difference between the successor's options as a percent of the successor's total compensation and the predecessor's options as a percent of the predecessor's total compensation). "Pay-at-risk" is the dollar value (in thousands of dollars) of the difference between the successor's and the predecessor's pay-at-risk compensation (is the difference between the successor's pay-at-risk compensation as a percent of the successor's total compensation and the predecessor's pay-at-risk compensation as a percent of the predecessor's total compensation). Pay-at-risk is the summation of bonus, restricted stock, and options.

* Significant at 0.05.
** Significant at 0.01.
*** Significant at 0.001.

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strong bargaining position and the potential risk of the new situation, the outsider may bargain for relatively less pay-at-risk and more fixed salary than the insider.

In Table 5 we estimate three regression models. In the first we focus on total compensation for inside and outside successors. In the second regression we focus on salary and in the third we focus on pay-at-risk. To differentiate the impact of each variable between inside and outside successors, we create a series of interaction terms with the binary variable that takes the value of 1 for outside successors and 0 for inside successors. We then multiply this variable by the other independent variables.

In the first regression, the dependent variable is the percent change in the successor's total compensation from the predecessor. We estimate separate models for insiders and for outsiders. We find that only the estimated coefficient for the designated heir variable is statistically significant (at the 0.10 level). Since all designated heirs are inside successors, there is no interaction term for

Table 5
Regression results

	Percent of change in total compensation from predecessor	Dependent variable equals successor compensation component as percent of total compensation	
		Salary	Pay-at-risk
Constant	1.645 (1.25)	0.177 (3.11)**	0.485 (7.89)***
Predecessor's component	–	0.209 (3.43)***	0.152 (2.10)*
Interaction of outside successor with predecessor's component	–	−0.061 (−0.62)	−0.102 (−0.93)
Change in titles	−0.361 (−0.68)	−0.038 (−2.01)*	0.025 (1.10)
Interaction of outside successor with change in titles	−1.002 (−1.02)	0.069 (1.98)*	−0.080 (−1.89)†
Forced turnover	−0.735 (−0.57)	0.051 (1.11)	−0.020 (−0.36)
Interaction of outside successor with forced turnover	1.634 (0.78)	−0.087 (−1.15)	0.012 (0.13)
Designated heir	−1.423 (−1.82)†	0.011 (0.40)	−0.058 (−1.72)†
Interaction of outside successor with designated heir	–	–	–
Change in Ln of total assets	1.415 (1.26)	−0.078 (−1.95)†	0.120 (2.48)*
Interaction of outside successor with change in Ln of total assets	0.444 (0.22)	0.016 (0.22)	0.026 (0.31)
Treynor measure$_{-1}$	−0.001 (−0.17)	0.000 (0.17)	−0.000 (−0.47)
Interaction of outside successor with Treynor measure$_{-1}$	0.004 (0.40)	0.000 (0.28)	−0.000 (−0.00)
Year 0-stock grants	0.000 (0.29)	−0.000 (−1.46)	0.000 (1.41)
Interaction of outside successor with year 0-stock grants	−0.000 (−0.40)	0.000 (1.21)	−0.000 (−0.92)
Year 0-options grants	−0.000 (−0.09)	−0.000 (−0.79)	−0.000 (−0.68)
Interaction of outside successor with year 0-options grants	−0.000 (−0.25)	−0.000 (−0.06)	−0.000 (−0.25)
Year −1-stock grants (inside succession)	−0.000 (−0.41)	−0.000 (−1.14)	−0.000 (−0.34)
Year −1-option grants (inside succession)	−0.000 (−1.18)	−0.000 (−1.88)†	0.000 (1.73)†
Year −1-stock grants (outside succession)	−0.000 (−0.85)	−0.000 (−0.77)	0.000 (0.89)
Year −1-option grants (outside succession)	−0.000 (−1.13)	0.000 (0.78)	−0.000 (−0.54)
Factor loading board-strength	−0.334 (−0.91)	0.000 (0.03)	0.001 (0.05)
Interaction of outside successor with factor loading board-strength	−0.023 (−0.03)	−0.020 (−0.81)	0.020 (0.69)
Outside successor	−0.161 (−0.16)	0.117 (2.16)*	−0.039 (−0.60)

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Table 5 (*Continued*)

	Percent of change in total compensation from predecessor	Dependent variable equals successor compensation component as percent of total compensation	
		Salary	Pay-at-risk
Adjusted R^2 (F)	5.8% (0.96)	16.9% (2.93)***	11.6% (1.90)**

The dependent variable is the percent change in the successor's total compensation from the predecessor in the first regression, salary as a percent of total compensation in the second regression, and pay-at-risk in the last regression. The sample consists of 139 outside CEO successions and 369 inside CEO successions occurring between 1992 and 2003. *Dependent variables*: "Change in total compensation (%)" is the dependent variable for the first regression and represents the difference between the successor's and predecessor's total compensation measured as a percentage of the predecessor's total compensation. "Salary" is the dependent variable for the second regression and represents the successor's salary measured as a percent of the successor's total compensation. "Pay-at-risk" is the dependent variable for the last regression and represents the successor's pay-at-risk measured as a percent of the successor's total compensation. *Independent variables*: "Predecessor's component" is the predecessor's salary as a percent of the predecessor's total compensation for the second regression and is the predecessor's pay-at-risk compensation as a percent of the predecessor's total compensation for the last regression. "Interaction of outside successor with predecessor's component" is the multiplication of the outside successor dummy variable with the predecessor's salary as a percent of the predecessor's total compensation for the second regression and the predecessor's pay-at-risk compensation as a percent of the predecessor's total compensation for the last regression. "Change in titles" is equal to −1 if the predecessor was CEO and Chair and the successor is only CEO, is equal to 0 if there is no change in titles, and is equal to +1 if the successor is CEO and Chair and the predecessor was only CEO. "Interaction of outside successor with change in titles" is the multiplication of the outside successor dummy variable with the change in titles independent variable. "Forced turnover" is equal to 1 for forced turnover and equal to 0 for voluntary turnover. "Interaction of outside successor with forced turnover" is the multiplication of the outside successor dummy variable with the forced turnover independent variable. "Designated heir" is equal to1 if the new inside CEO was the designated heir apparent and equal to 0 otherwise. "Interaction of outside successor with designated heir" is the multiplication of the outside successor dummy variable with the designated heir independent variable. "Change in Ln of total assets" is the difference between the natural log of the total assets from year −1 to +1. "Interaction of outside successor with change in Ln of total assets" is the multiplication of the outside successor dummy variable with the change in Ln of total assets independent variable. "Treynor measure$_{-1}$" is equal to the stock's return over the year prior to the successions divided by the stock's beta for year −1. "Interaction of outside successor with Treynor measure$_{-1}$" is the multiplication of the outside successor dummy variable with the Treynor measure independent variable. "Year 0-stock grants" is the successor's restricted stock at year 0. "Interaction of outside successor with year 0-stock grants" is the multiplication of the outside successor dummy variable with the year 0-stock grants independent variable. "Year 0-option grants" is the aggregate value of all options granted to the successor at year 0. "Interaction of outside successor with year 0-options grants" is the multiplication of the outside successor dummy variable with the year 0-option grants independent variable. "Year −1-stock grants (inside succession)" is the inside successor's restricted stock at year −1 in the sample firm. "Year −1-option grants (inside succession)" is the aggregate value of all options granted to the inside successor at year −1 in the sample firm. "Year −1-stock grants (outside succession)" is the outside successor's restricted stock at year −1 in their prior firm. "Year −1-option grants (outside succession)" is the aggregate value of all options granted to the outside successor at year −1 in their prior firm. "Factor loading board-strength" includes the inverse of the number of directors on the board for year −2, the percent of independent (outside) directors on the board for year −2, the number of years the outside directors were board members for year −2, the number of times the board met for year −2, the inverse of the compensation committee size for year −2, and the number of times the compensation committee met for year −2. "Interaction of outside successor with factor loading board-strength" is the multiplication of the outside successor dummy variable with the factor loading board-strength independent variable. "Outside successor" is equal to 1 for outside successor and equal to 0 for inside successor. We also control for time. We create yearly dummy variables. For example: "1993 $D = 1$" is equal to 1 for successions that occur in 1993 and equal to 0 otherwise, "1994 $D = 1$" is equal to 1 for successions that occur in 1994 and equal to 0 otherwise, etc. We ran collinearity diagnostics and all variance inflation factors (VIF) were less than 10.

* Significant at 0.05.
** Significant at 0.01.
*** Significant at 0.001.
† Significant at 0.10.

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this variable with the outsider binary variable. The sign of this estimated coefficient is negative and this implies that designated heirs receive less of an increase in total compensation than non-designated heirs. However, the overall *F*-statistic for this estimated model is insignificant, so we must view these results with caution.

In the second regression, we estimate a model for salary as a percent of total compensation. Here, we find that the estimated coefficient for the predecessor's component (salary) is positive and significant (at the 0.001 level). However, the interaction term of this variable with the outsider binary variable is nominally negative but statistically insignificant. This result implies that the predecessors' salary is a determinant for inside successor salary, but not for outside successors. Our interpretation is that inside successors may be viewed by the board as more of a status quo hire, and this is reflected in the compensation structure with inside successors receiving a more similar salary to the predecessor than the outsider receives.

In this model, the estimated coefficient for the change in titles variable is negative and significant (at the 0.05 level). The interaction term of this variable with the outsider binary variable is positive and significant (at the 0.05 level). An increase in titles for an inside successor is not associated with a greater increase in salary, but an outside successor receives greater salary when obtaining more titles than their predecessor. This likely is a reflection of the increased bargaining power of the outside successors.

In the last regression, we estimate a model with pay-at-risk as a percent of total compensation. In this model, the estimated coefficient for the predecessor's pay-at-risk component is positive and significant, but this variable's interaction term with the outsider binary variable is insignificant. Our interpretation is the same as in the last model that had similar findings; the board likely views inside successors as more of a status quo hire. This is reflected in the compensation structure with inside successors receiving more similar pay-at-risk to the predecessor than the outsider receives. The estimated coefficient for the change in titles variable is insignificant, but this variables interaction term is negative (significant at the 0.10 level). Outside CEO successors receive less pay-at-risk when their titles increase over the predecessors.

If we examine the results of these models, two things are apparent. First, the predecessor's salary and pay-at-risk components are a significant determinant for inside successors but not for outsider successors. This suggests a somewhat greater redesign of outsider contracts than for insiders. Second, when the number of titles increases for successors, outside successor pay-at-risk increases but inside successor pay-at-risk does not. Receiving more titles likely suggests that the successor has been given more authority. With this increased authority, the outside successors are able to bargain for a less risky contract than are the insiders.

5. Conclusions

We propose that since CEOs may oppose the restructuring of their compensation contracts, boards may choose the turnover-succession event to redesign the manner in which they compensate the firm's CEO. Since there is no existing compensation contract with the successor as CEO, the board may find it easier to implement change at this time than to attempt changes with an incumbent and possibly powerful CEO. The board's desire for the successor CEO to have a more performance-related compensation contract may be offset by the successor CEO's bargaining power.

Using a sample of 508 succession announcements, we compare the compensation packages of predecessor CEOs in the year before the succession to that of the successor in the year after the succession. Overall, our results show that successors receive nearly a 70% pay increase over their

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predecessors. However, the non-performance-related pay increases only a small amount in terms of dollars and as a percent of total compensation. However, the proportion of pay that is performance related increases substantially in dollar amount and in proportion of total compensation.

Our results suggest that boards do use the turnover-succession event to redesign the compensation packages of their firms' CEOs. In addition, they use this opportunity to make the compensation package more dependent on performance.

We must qualify our conclusions here. Both Bebchuk and Fried (2004) and Murphy (2002) argue that the use of options by boards has increased. Bebchuk and Fried (2004) suggest that this has occurred to camouflage the overall increase in executive compensation allowing CEOs to extract greater rents from their firms. Murphy (2002) argues that boards do not perceive the true cost of option grants and use them because they believe their cost is low to the firm. Our evidence that option compensation has increased for successors may be due to this overall increase in the use of options. Our results are, however, invariant in this regard when we control or do not control for time in the regression models. Our tests do not allow us to directly distinguish the motivation of the boards.

We do provide some indirect evidence on this issue. Salary as a percent of total compensation is negatively related to board strength, but pay-at-risk as a percent of total compensation is positively related to this variable. Our evidence suggests that when restructuring the compensation contract, boards that are stronger have greater bargaining power than weaker boards and put more at risk and less in salary.

Our evidence concerning strong boards seems at odds with the manager-power hypothesis (Bebchuk & Fried, 2004), but is somewhat consistent with the results in Core, Holthausen, and Larcker (1999) and Tosi and Gomez-Mejia (1989) who show that governance and ownership structure influences CEO compensation. They show that when managers have greater control of a firm that pay is greater and less performance oriented.

We also find that outside successors, on average, receive greater salary and less pay-at-risk than inside successors. To attract a qualified outside successor, the board may need to reduce the contract's risk to make the position more attractive. The outsider already is extracting rents from another company and may have a better bargaining position as a result. To lure the outsider to the company, the board must at least match the rents paid by the other company (if not increase them) and may be required to reduce the risk of the position. Inside candidates are not yet CEOs and are not giving-up rents of a position as CEO (Bebchuk & Fried, 2004). Hambrick and Finkelstein (1995) argue that outsiders face a considerably larger risk of failure as CEO, must move to a new and unfamiliar company, and face personal and family costs. Thus, they would require lower risk pay structures. Nevertheless, we do not find that problems with a predecessor cause the board to restructure pay more toward performance.

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